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1396 ;
1397 ; GENERAL USE SUBROUTINES
1398 ;
1399 ; Set colors for special routines
24FF AF      1400 A24FF XOR      A
2500 D304     1401          OUT     (COL0L),A
2502 D300     1402          OUT     (COL0R),A
2504 D309     1403          OUT     (HORCB),A
2506 3E0F     1404          LD      A,0FH
2508 D301     1405          OUT     (COL1R),A
250A D302     1406          OUT     (COL2R),A
250C D303     1407          OUT     (COL3R),A
250E         1408          SYSSUK  FILL
250E FF      1409+         RST      38H
250F 1B      1410+         DB      FILL+1
2510 0040    1414          DW      NORMEM
2512 B00F    1415          DW      4016
2514 00      1416          DB      0
2515 C9      1417          RET
1418 ;
2516         1419 A2516     SYSSUK  STRDIS
2516 FF      1420+         RST      38H
2517 35      1421+         DB      STRDIS+1
2518 04      1425          DB      4
2519 28      1426          DB      40
251A 0C      1427          DB      00001100B
251B 4124    1428          DW      T2441      ; 'ENTR 4-DIGT HEX'
251D C9      1429          RET
1430 ;
251E         1431 A251E     SYSSUK  STRDIS
251E FF      1432+         RST      38H
251F 35      1433+         DB      STRDIS+1
2520 04      1437          DB      4
2521 32      1438          DB      50
2522 0C      1439          DB      00001100B
2523 5124    1440          DW      T2451      ; 'READ ADDR'
2525 C9      1441          RET
1442 ;
2526         1443 A2526     SYSSUK  STRDIS
2526 FF      1444+         RST      38H
2527 35      1445+         DB      STRDIS+1
2528 04      1449          DB      4
2529 28      1450          DB      40
252A 0C      1451          DB      00001100B
252B 6624    1452          DW      T2466      ; 'ENTR 2-DIGT HEX'
252D C9      1453          RET
1454 ;
252E         1455 A252E     SYSSUK  STRDIS
252E FF      1456+         RST      38H
252F 35      1457+         DB      STRDIS+1
2530 04      1461          DB      4
2531 28      1462          DB      40
2532 0C      1463          DB      00001100B
2533 9524    1464          DW      T2495      ; 'ENTR 2-DIGT HEX'
2535         1465          SYSSUK  STRDIS
2535 FF      1466+         RST      38H
2536 35      1467+         DB      STRDIS+1

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257E		1537 A257E	SVSSUK	STRDIS	; Display 4 asterisks
257E	FF	1538+	RST	39H	
257F	35	1539+	DB	STRDIS+1	
2580	48	1543	DB	72	
2581	46	1544	DB	70	
2582	0C	1545	DB	00001100B	
2583	8B24	1546	DW	T24BB	; '****'
2585	210000	1547 A2595	LD	HL,0	
2588	CD5025	1548	CALL	A2550	
258B	FE18	1549	CP	24	
2590	283E	1550	JR	Z,A25CD	; "GO" key
258F	FE15	1551	CP	21	
2591	28E2	1552	JR	Z,A2575	; "CE" key
2593		1553	XVRELL	DE,72,70	
2593	114846	1554+	LD	DE,70 SHL 8+(72)	
2596	CD3025	1555	CALL	A253D	
2599	78	1556	LD	A,B	
259A	CD0320	1557	CALL	A2003	; Mul A by 16
2590	67	1558	LD	H,A	; First nibble
259E	CD5025	1559	CALL	A2550	
25A1	FE15	1560	CP	21	
25A3	28D0	1561	JR	Z,A2575	; "CE" key
25A5	CD3025	1562	CALL	A253D	
25A8	7C	1563	LD	A,H	
25A9	B0	1564	OR	B	
25AA	67	1565	LD	H,A	; Second nibble
25AB	F1	1566	POP	AF	
25AC	A7	1567	AND	A	
25AD	2001	1568	JR	NZ,A25B0	
25AF	C9	1569	RET		
		1570 ;			
25B0	F5	1571 A25B0	PUSH	AF	
25B1	CD5025	1572	CALL	A2550	
25B4	FE15	1573	CP	21	
25B6	28D6	1574	JR	Z,A257E	; "CE" key
25B8	CD3025	1575	CALL	A253D	
25B8	78	1576	LD	A,B	
25BC	CD0320	1577	CALL	A2003	; Mul A by 16
25BF	6F	1578	LD	L,A	
25C0	CD5025	1579	CALL	A2550	
25C3	FE15	1580	CP	21	
25C5	28B7	1581	JR	Z,A257E	; "CE" key
25C7	CD3025	1582	CALL	A253D	
25CA	7D	1583	LD	A,L	
25CB	B0	1584	OR	B	
25CC	6F	1585	LD	L,A	
25CD	F1	1586 A25CD	POP	AF	
25CE	C9	1587	RET		
		1588 ;			
		1589 ; Fixed delay routine			
25CF	3EFF	1590 A25CF	LD	A,255	
25D1	06FF	1591 A25D1	LD	B,255	
25D3	10FE	1592 A25D3	DJNZ	A25D3	
25D5	3D	1593	DEC	A	
25D6	20F9	1594	JR	NZ,A25D1	
25D8	C9	1595	RET		
		1596 ;			

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2631 0C      1663      DB      00001100B
2632 8024     1664      DW      T2400      ; 'WRITE PORT'
2634 AF      1665      XOR      A
2635 CD7125   1666      CALL    A2571
2638 E5      1667      PUSH    HL
2639 7C      1668      LD      A,H
263A D3FF     1669      OUT     (DSPLY),A
263C C0CF25   1670      CALL    A25CF
263F C0FF24   1671      CALL    A24FF
2642 CD2E25   1672      CALL    A252E      ; "ENTR 2-DIGT BYTE TO WRITE"
2645 AF      1673      XOR      A
2646 CD7125   1674      CALL    A2571
2649 C1      1675      POP     BC
264A 48      1676      LD      C,B
264B ED61     1677 A264B OUT     (C),H
264D 18FC     1678      JR      A264B
                1679 ;
                1680 ; Special Routine 5      Memory Read and Write Routine
264F C0FF24   1681 A264F CALL    A24FF      ; Set colors
2652 CD2E25   1682      CALL    A252E      ; "ENTR 2-DIGT BYTE TO WRITE"
2655 AF      1683      XOR      A      ; Get 2 disits
2656 CD7125   1684      CALL    A2571
2659 E5      1685      PUSH    HL      ; Save
265A 7C      1686      LD      A,H
265B D3FF     1687      OUT     (DSPLY),A      ; Send to display
265D C0CF25   1688      CALL    A25CF      ; Delay
2660 C0FF24   1689      CALL    A24FF      ; Clear screen
2663 CD1625   1690      CALL    A2516      ; "ENTR 4-DIGT HEX"
2666 CD1E25   1691      CALL    A251E      ; "READ ADDR"
2669 3E01     1692      LD      A,1      ; Get 4 disits
266B CD7125   1693      CALL    A2571
266E C1      1694      POP     BC
266F 70      1695 A266F LD      (HL),B
2670 7E      1696      LD      A,(HL)
2671 18FC     1697      JR      A266F      ; Loop forever
                1698 ;
                1699 ; Special Routine 6      Display All Input Devices
2673 C0FF24   1700 A2673 CALL    A24FF
2676 21024     1701      LD      HL,T2400      ; Labels
2679         1702      MOVRELL DE,4,10
2679 11040A    1703+     LD      DE,10 SHL 8+(4)
267C C0FB26   1704      CALL    A26FB
267F 210824   1705      LD      HL,T2408      ; Labels
2682         1706      MOVRELL DE,80,0
2682 115000    1707+     LD      DE,0 SHL 8+(80)
2685 C0FB26   1708      CALL    A26FB
2688 00      1709      EX      AF,AF'
2689 AF      1710      XOR      A
268A 00      1711      EX      AF,AF'
268B 211020   1712      LD      HL,T2010      ; Set interrupt routine adrs.
268E 7C      1713      LD      A,H
268F ED47     1714      LD      I,A
2691 7D      1715      LD      A,L
2692 D30D     1716      OUT     (INFBK),A
2694 3E03     1717      LD      A,3
2696 D30E     1718      OUT     (INMOD),A
2698 FB      1719      EI

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2705 D618      1777      SUB      18H
2707 5F        1778      LD       E,A      ; Reduce 3 char positions
2709 7A        1779      LD       A,D
2709 C60A      1780      ADD      A,10     ; Get vertical position
270B 57        1781      LD       D,A     ; Increment by 1 line
270C FE5A      1782      CP       90      ; (10 pixels)
270E 20EB      1783      JR       NZ,A26FB
2710 C9        1784      RET
          1785 ;
          1786 ; Display A in ASCII
2711 67        1787 A2711 LD       H,A
2712 E6F0      1788      AND      0FH      ; Save input value
2714 0F        1789      RRCR      ; M. S. nybble first
2715 0F        1790      RRCR
2716 0F        1791      RRCR
2717 0F        1792      RRCR
2718 CD4625    1793      CALL     A2546     ; Convert to ASCII
271B CD3D25    1794      CALL     A253D     ; Display
271E 7C        1795      LD       A,H      ; L. S. nybble last
271F E60F      1796      AND      0FH
2721 CD4625    1797      CALL     A2546     ; Convert to ASCII
2724 CD3D25    1798      CALL     A253D     ; Display
2727 C9        1799      RET
          1800 ;
          1801 ; Interrupt routine for Display All Input Devices
2728 F3        1802 A2728 DI
2729 08        1803      EX       AF,AF'
272A A7        1804      AND      A
272B 2817      1805      JR       Z,A2744
272D 08        1806      EX       AF,AF'
272E DB0E      1807      IN       A,(VERAF)    ; Get vertical Lite Pen
2730 CB3F      1808      SRL      A
2732          1809      XVRELL DE,20,10
2732 11C0A     1810+     LD       DE,10 SHL 8+(28)
2735 CD1127    1811      CALL     A2711
2738 DB0F      1812      IN       A,(HORAF)    ; Get horizontal Lite Pen
273A D609      1813      SUB      8
273C          1814      XVRELL DE,20,20
273C 11C14     1815+     LD       DE,20 SHL 8+(28)
273F CD1127    1816      CALL     A2711
2742 FB        1817 A2742 EI
2743 C9        1818      RET
          1819 ;
          1820 A2744 INC      A
2744 3C        1821      EX       AF,AF'
2745 08        1822      JR       A2742
2746 18FA      1823 ;
          1824 ; Special Routine 7 Rainbow Color Display
2748 110040    1825 A2748 LD       DE,NORMEM
2748 21A627    1826      LD       HL,T27A6
274E 011400    1827      LD       BC,20
2751 ED08      1828      LDIR
2753 210040    1829      LD       HL,NORMEM    ; Put up rainbow pattern
2756 01DC0F    1830      LD       BC,0FDCH
2759 ED08      1831      LDIR
2759 211220    1832      LD       HL,T2012    ; Fill rest of screen
275E 7C        1833      LD       A,H      ; Set up interrupt adrs

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	1888 ;		
	1889 ; Special Routine 8		Enter Machine Code From Keypad
27BA CDFF24	1890 A27BA	CALL	A24FF ; Set colors.
27BD CD1625	1891	CALL	A2516 ; "ENTR 4-DIGT HEX"
27C0	1892	SVSSUK	STRDIS
27C0 FF	1893+	RST	39H
27C1 35	1894+	DB	STRDIS+1
27C2 04	1898	DB	4
27C3 32	1899	DB	50
27C4 0C	1900	DB	00001100B
27C5 8B24	1901	DW	T248B ; 'STRT ADDR'
27C7 3E01	1902	LD	A.1 ; Get 4 disits
27C9 CD7125	1903	CALL	A2571
27CC E5	1904	PUSH	HL ; Save start
27CD E5	1905	PUSH	HL
27CE CDCF25	1906	CALL	A25CF
27D1 CDFF24	1907	CALL	A24FF
27D4	1908	SVSSUK	STRDIS
27D4 FF	1909+	RST	39H
27D5 35	1910+	DB	STRDIS+1
27D6 04	1914	DB	4
27D7 28	1915	DB	40
27D8 0C	1916	DB	00001100B
27D9 9524	1917	DW	T2495 ; 'ENTR 2-DIGT HEX'
27DB	1918	SVSSUK	STRDIS
27DB FF	1919+	RST	39H
27DC 35	1920+	DB	STRDIS+1
27DD 04	1924	DB	4
27DE 32	1925	DB	50
27DF 0C	1926	DB	00001100B
27E0 A524	1927	DW	T24A5 ; 'DATA'
27E2	1928	SVSSUK	STRDIS
27E2 FF	1929+	RST	39H
27E3 35	1930+	DB	STRDIS+1
27E4 04	1934	DB	4
27E5 5A	1935	DB	90
27E6 0C	1936	DB	00001100B
27E7 F324	1937	DW	T24F3 ; "GO" TO RUN'
27E9 CDCF25	1938 A27E9	CALL	A25CF ; Delay
27EC AF	1939	XOR	A ; Get 2 disits
27ED CD7125	1940	CALL	A2571
27F0 78	1941	LD	A.B
27F1 FE18	1942	CP	24
27F3 20B3	1943	JR	NZ,A27F8
27F5 E1	1944	POP	HL ; "GO" key
27F6 E1	1945	POP	HL
27F7 E9	1946	JP	(HL)
	1947 ;		
27F8 D1	1948 A27F8	POP	DE
27F9 7C	1949	LD	A.H
27FA 12	1950	LD	(DE),A
27FB 13	1951	INC	DE
27FC D5	1952	PUSH	DE
27FD 18EA	1953	JR	A27E9
	1954 ;		
27FF 37	1955	DB	37H ; Checksum byte